JUSTIFICATION FOR OTHER THAN FULL AND OPEN COMPETITION

1. Nature and/or Description of the Action

The Defense Threat Reduction Agency (DTRA) contracting activity proposes to procure without using full and open competition an effort entitled "Chemical and Biological Testing and Diagnostics Development and Verification Services in Support of DTRA Weapons of Mass Destruction (WMD) Defeat Program."

2. Description of the Supplies/Services Required

This effort will be accomplished by issuing a sole source contract to Southwest Research Institute (SwRI) that will be incrementally funded for one 36 month base period with two options of 12 months each. This new contract will be a follow-on to contracts HDTRA1-06-C-0006 and HDTRA1-08-C-0042. The total estimated dollar value, inclusive of options, is $5M.

Under the proposed acquisition, Southwest Research Institute will provide research and development (R&D) and testing services in two specific areas:

Area 1 is the development, testing, and validation of next generation live simulant test diagnostics and protocols for combined chemical and biological WMD Defeat testing.

> The contractor will develop, test and validate advanced diagnostic protocols using existing technologies and, as needed and approved, novel technologies developed under the project that can be use during the testing of WMD defeat payloads.
>
> The protocols and novel technologies will address diagnostics for chemical and biological agents, simulants, toxic industrial chemicals/materials, non-traditional agents, and/or energetic materials as they are exposed to sequential, synergistic WMD Defeat environments generated via advanced concept weapons and capabilities over the designed functional period of the weapon/capability.
>
> Additionally, the contractor must be able to evaluate the efficacy of newly designed/developed simulants with respect to their emulation of the response of the actual agent to the designed weapon effects and dispersion characteristics in the plume as well as their safety and environmental impact as part of this effort.

Area 2 is to test innovative technologies for WMD Defeat payload concepts and analyze the results of those tests.

> The contractor will focus on sub-scale testing of various WMD Defeat concepts against simulated chemical and biological weapons and shall provide scientific, engineering and other technical services, as well as the test facilities required to successfully accomplish

experiment design, installation and instrument test calibration, testing, test set-up, and test analysis. The data obtained from this effort will support the development of advanced weapon payloads targeted against biological and/or chemical weapons of mass destruction to include the supporting development and production infrastructure. This activity requires the contractor to provide facilities that are capable of repeated, precise collection of live/active biological and chemical simulant samples over a broad time scale (milliseconds to 10s of minutes). Also, the contractor must provide analysis of impact of the weapon effects to include viability of the biological (bacteria, viruses, and toxins) and activity of the chemical simulants, store the samples for an extended period of time for further tests as required, and safely dispose of them when the full test protocol is completed. The contractor must be able to execute a test, collect and distribute the live simulant samples, decontaminate the test chamber, and return it to test ready conditions in no more than five (5) working days.

Only the facilities at SWRI and the Eglin AFB Test Range have the combination of facilities (explosive testing and research and environmental laboratories) to accommodate the type and size of the advanced WMD Defeat payloads currently being developed and ready for initial Developmental Test and Evaluation (DDT&E). These two facilities also maintain the appropriate size cadre of technical personnel in place to complete the full scope of the tasks associated with this effort in a safe and efficient manner. Additionally, they are also unique in having the requisite environmental approvals appropriate and necessary to use the payload components and next generation of simulants that will be utilized in these tasks already in place.

3. Statutory Authority

The statutory authority for this non-competitive action is 10 U.S.C. 2304(c) (1), as implemented by FAR 6.302-1, "Only One Responsible Source."

4. Applicability of Authority

SwRI performance under contract HDTRA1-06-C-0006 and bridge contract HDTRA1-08-C-0042 was fully satisfactory. SwRI is a non-profit research organization that has a long history of involvement with various WMD Defeat programs for both DTRA and the Air Force. SwRI was the first to design, build, and instrument a sub-scale live simulant WMD Defeat testing facility. This facility served as the model for the current primary Department of Defense (DoD) sub-scale live simulant Agent Defeat (AD) test facility at the Eglin AFB test range, and remains one of only two existing facilities in the US capable of performing the work envisioned by this effort. While there are several sub-scale conventional weapon/weapon payload testing facilities located within both the private sector and Government (DoD and Department of Energy (DOE)), there are currently only two facilities in existence that are acceptable for WMD Defeat live simulant subscale testing (1/4 scale explosive force). They are the Air Force's Weapons Performance and Measurement Biological Agent Defeat (WPMBAD) at the Eglin AFB test range and SwRI's weaponized agent-testing facility. As a result, SwRI is the only responsible source capable of handling the increased volume of the WMD Defeat Program's live simulant sub-scale testing without significant investments in facility infrastructure.

With respect to WMD Defeat live simulant subscale testing: these are the only two test facilities with a capability of testing in terms of:

- The amount of explosive that can be used in single test
- Live simulant instrumentation, plume containment and handling
- Environmental Protection Agency (EPA) approval required for the use of the Chemical and Biological simulant for sub-scale live simulant Agent Defeat (AD) weapon testing

The Agent Defeat program currently uses and is the primary funding source for the personnel and maintenance costs of the WPMBAD sub-scale C-WMD test facility at the Eglin Test Range to support its live simulant subscale testing requirements. However, the capacity of this facility is limited to approximately 23 tests per year, a limitation that has caused delays to the Agent Defeat Program. The live simulant sub-scale testing requirements for the Agent Defeat Program are now approximately 40 tests per year, a number that is forecasted to remain stable or grow slightly during the foreseeable future. SwRI is the only responsible source with the technical expertise and infrastructure capable of handling the additional volume of live simulant testing now required. The successful completion of the initial phases of several weapons payload and advanced diagnostics development efforts which will be transitioning to the sub-scale testing phase of their respective efforts during the period of performance for this contract will continue to place greater demands on the WMD Defeat live simulant testing facilities which the Eglin test range will not be able to accommodate.

In addition, a new testing requirement for the WMD Defeat Program has emerged in the form of sub-scale, live simulant test data for various implementation tactics for the next generation Agent Defeat capability. As the program transitions to multiple Agent Defeat variant weapons to the War fighter it is highly probable that there will be even more strain on the available simulant sub-scale test facilities.

The projected impact of the lack of live simulant sub-scale weapon testing will present an unacceptable bottle-neck in the path between concept development and capability to transition to the war fighter that began in fiscal year (FY) 2006 and continues with the Future Years Defense Plan (FYDP). To build a new facility has proven to be prohibitive in terms of cost and the time required to attain operational and certification status. Presently, SwRI is the only responsible certified source capable of performing the volume of test required for the WMD Defeat Program while simultaneously having the facility and expertise comparable in function to the Government's WPMBAD facility thereby mitigating the impact of subscale live simulant weapon effectiveness testing. SwRI currently meets or exceeds facility requirement to perform the effort. Current estimates for construction of a new facility to be built would take from one - two years at an estimated cost of $1.5M - $2.0M. As such it is cost and schedule prohibitive to have a contractor construct a sub-scale test facility similar to the Eglin structure.

The sole source award to SwRI is further justified as SwRI has in place a completed Environmental Assessment and Impact Statement from the EPA certifying the complete list of CBW agent simulants commonly used by the WMD Defeat Program. This has resulted in saving

approximately nine months to two years in obtaining EPA certification. By meeting these criteria, it is likely that the WMD Defeat Program can meet its commitment to transition to the operational capability without an unacceptable impact to its new technology development efforts.

The SwRI sub-scale facility as it exist represents a unique capability to augment the Eglin facility in conducting testing of weapons components and advanced diagnostics for the live simulant WMD Defeat testing in controlled chemical and biological environments. They have demonstrated the capability to test biological and chemical agents separately and in combined tests (mixed chemical and biological). SwRI is the only contractor with personnel experienced in live simulant sub-scale development test and evaluation of WMD Defeat weapons and a readily available live simulant test facility. The SwRI facility is certified for all the current simulants in use by the WMD Defeat program and able to perform the work required for this effort with no investment in facilities construction and within the timeframe required by DTRA.

Consistent with these findings is the fact that SwRI has established a record of accomplishments of successful Research and Development (R&D), Test and Evaluation (DT&E) in support of both DTRA and Service Agent Defeat related projects such as:

- The DTRA Agent Defeat programs
- The Agent Defeat Warhead Technologies for the Air Force (AF) Munitions Directorate (5 years of effort)
- Research in Neutralization Technologies with the AF and SAIC (5 years of effort)
- Fifteen years experience in dealing with chemical weapons assessment, decontamination
- SwRI has developed and retained a highly educated and skilled technical staff that brings all of the various science and engineering disciplines together to focus them on Agent Defeat related problems as:
    - blast evaluation, design, fabrication, analysis, testing, and forensics
    - ballistics, fragmentation, impact, and penetration mechanics
    - weapons effects evaluation, design, testing
    - high rate instrumentation development and implementation

This experience has been gained via a broad range of contracts including:

- Chemical and Biological Testing Services in support of the AD3 Program (HDTRA1-06-C-0006; 7/28/06—12/31/07) conducted under contract to DTRA and HDTRA1-08-C-0042; (6/09/08 – 6/08/09)

- Agent Defeat Warhead Technology (F08630-95-C-0081; 8/19/95 – 2/1/00) conducted under contract to Air Force Weapons Directorate, Eglin AFB
- Weapons Effectiveness Evaluation Program (WEEP; F08630-99-D-0074; 12/14/99 – 4/30/2002) conducted under contract to the Air Force Weapons Directorate, Eglin AFB
- Research In Neutralization Studies (DAAD599D7015, 6/10/2002 – 9/30/2005) conducted under contract (SAIC prime) to Defense Threat Reduction Agency

Supporting these efforts and available to the proposed study under this contract SwRI has developed and maintains the following laboratory and testing capabilities

- **Agent Defeat Facility:** To simulate a notional storage/production facility of biological weapons (BW) materials in ¼ scale, SwRI engineers designed and built the Agent Defeat Facility. The facility consists of a primary blast chamber and a connected adjacent hallway, designed to simulated a real-world BW storage facility. It is the only non-DoD sub-scale live simulant AD weapon test facility currently operational in the CONUS.
- **SwRI Ballistics and Explosives Range:** The main range is a 10-acre outdoor facility with 12 designated test sites and is located on the SwRI grounds in San Antonio, Texas. The range has the capability of testing explosive devices up to 3-pound TNT equivalent, and the firing of powder guns up to 50 mm in caliber.
- **Surety Test Facility:** The Surety Facility has developed Test/Analytical Procedures for a variety of agent analyses in accordance with the Division's ISO Quality Management System.
- **Chemical Analysis Laboratory:** With the use of atomic emission and absorption spectroscopy, atomic emission mass spectrometry, ion chromatography, and spectrophotometer, providing the capability to do near real time primary and trace combustion product analyses of the explosive plumes generated during AD weapon and diagnostic validation testing in their AD sub-scale test facility.

The unique capability, both in WMD Defeat specific and related R&D and test facilities and experienced personnel, make SwRI the sole contractor able to immediately execute the AD weapon and diagnostic R&D and DT&E project specified in this contract. Award to any other contractor would result in unacceptable cost and schedule impacts to the government.

5. Effort to Solicit Potential Sources

As required by FAR 5.201, this anticipated action was synopsized on Federal Business Opportunities (www.fbo.gov) from January 26, 2009 – February 11, 2009. One (1) response was received from a minority woman-owned systems integration company that provides mission, operational and IT enterprise support to the government and commercial clients. The company designs, integrates, maintains, and upgrades systems for national defense, intelligence and other high-priority government missions. Although they were unable to fulfill the Government's requirement as a prime contractor, the Contracting Officer provided the company with SwRI's contact information and also provided the company's contact information to the SwRI contracts manager for potential subcontracting opportunities. No other responses were received.

6. Fair and Reasonable Cost

The anticipated cost/price of this contract action will be determined to be fair and reasonable based on field pricing support from the cognizant DCAA office, input/evaluation from the project office, and projections from actual and historical data taken from files and comparative analyses. During the course of negotiations, DTRA will ensure that costs are fair and reasonable,

or we will not enter into the contract. The Contracting Officer's signature on the resulting document will constitute the determination required by FAR 6.303-2(a).

7. Market Research

A market survey, based on the extensive technical biological testing experience of the DTRA Program Manager, was conducted prior to the award of the previous contracts. It was determined that no other potential source could responsibly learn the technology requirements and techniques needed to perform this effort in a timely or cost-effective manner. This market survey was accomplished by contacting knowledgeable individuals in Government and industry regarding market capabilities to meet requirements and participating in on-line communication among industry, acquisition personnel, and customers.

The survey included a review of pertinent historical acquisition information from DTRA's extensive live simulant testing documentation. Also, a review of internet sources under the headings of "explosive weapon development and testing", "chemical and/or biological simulant testing and/or development", "agent defeat weapon testing". As well as meetings and discussions with potential offers to include:

- Battelle (both as an independent entity and as the operator of Idaho National Laboratory)
- Edgewood Chemical and Biological Center
- ExQuadrum Inc. (a DTRA SBIR Agent Defeat payload developer)
- Army's Engineer Research and Development Center
- and the DTRA Program Manager and other members of his branch personal knowledge of all DTRA's test range capability including:
    - Chestnut Test range at Kirtland AFB
    - Permanent High Explosive Test Site at the White Sands Missile Range
    - Weapons Performance and Measuring Biological Agent Defeat test facility at the Eglin Test Range
    - Nevada Test Site
    - Dugway Proving Grounds

These results and querying the DoD services and other public and private entities within this very small test community showed no other active purveyors for small scale biological and chemical testing. The survey results are compiled in a Market Research Report dated 20 Feb 09.

8. Other Facts

A Statement of work was developed for this action.

An independent government cost estimate was developing using historical data from cost incurred previous years.

The DTRA Program Manager has continued to remain abreast of the market capability for this type of specific support and has found no significant changes in the market. The contractor selected has the unique experience in conducting chemical and biological testing and Agent

Defeat research and testing for the U. S. Air Force Research Laboratory, Eglin AFB, and its existing test facilities. This experience gives it an unrivaled demonstrated capability and in-depth experience and proven, operating and certified facilities to perform every aspect of testing of live and simulated agents required by the Statement of Work. No other contractor without these existing facilities (and there are none) could be competitive within and cost and schedule. In addition, it would be cost and schedule prohibitive to hire a new contractor, bring him up to an acceptable level of expertise and then ask that contractor to design and build a new facility. Such an action would cost the government more money and delay this effort by at least a year.

9. Interested Sources

NONE. Based on the Market Research cited in paragraph 7, there were no interested sources.

10. Subsequent Actions

The technical community will continue to monitor the market for sources capable of performing the effort as outlined in this documentation.

Technical Certification

I certify that the data and information forming the basis for this justification are accurate and complete to the best of my knowledge and belief.

Contracting Officer Certification and Approval

I certify that this justification is accurate and complete to the best of my knowledge and belief.

Gretchen R. Clohessy
Contracting Officer

17 Mar 2009
Date

General Counsel Coordination

This justification is/ is not legally sufficient.

Approval

Based on the above justification, I hereby approve accomplishment of this acquisition by means other than full and open competition.